

27 An updated account of the WISELAV project: a visual construction of the English verb system

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Abstract

This article presents the state of the art in WISELAV, an on-going research project based on the metaphor Languages Are (like) Visuals (LAV) and its mapping Words-In-Shapes Exchange (WISE). First, the cognitive premises that motivate the proposal are recalled: the power of images, students' increasingly visual cognitive learning style, and the importance of grammar in L2 learning. Then an updated report follows on WISE's analysis of the English verb system, an interpretation in terms of a transfer of morphological-functional information, represented through a series of fitting shapes. These are purposely assigned, as certain basic iconicity principles are applied to associate verb grammar meanings and graphic forms. The shapes so described appear with the steps taken to develop a pilot computer programme and to both highlight the visual aspects of the system and eventually enable its use online.

Keywords: English verb, applied linguistics, construction grammar, cognitive learning, verbo-graphic metaphor.

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1. **Introductory foundations of WISELAV**

WISELAV is a research project whose purpose is to study the implications of the proposed metaphor (LAV/WISE), and to develop a set of suitable supports for assessing its potential pedagogic value. As an on-going project, it aims to explore how its proposed visual framework can account for analysing and teaching English verb phrases, rather than becoming a grammar of the English verb on its own or a comparative study of other existing analyses. Because of this and space restrictions, this paper includes hardly any references to the huge number of existing works dealing with verbs and tense in English.

For a better understanding of the project and its scope, it seems convenient to first acknowledge the cognitive premises that set it off. The first one is the power of images. Through multiple arrangements, they have always proved to be useful to illustrate and explain the often-complex processes of science; and now, with the new technologies, hypertext and the digital era, images have also taken over outside the academic world in our everyday lives. Thus, this expansion of image usage is bringing about some changes for our cognitive learning styles. This phenomenon, of particularly decisive pedagogic consequences for the younger generation, has not been unnoticed by researchers: Myers (2003), for example, suggested the incorporation and explanation of non-verbal elements within visual texts; Littlemore (2004) verified students' increasingly visual cognitive learning style; and Jiang and Grabe (2007) explored the linguistic usage of some graphic organisers to represent text structure.

Another premise of WISE was to acknowledge that nowadays grammar teaching – although considered an essential component in L2 learning – is frequently neglected, a situation often aggravated in brief English for Specific Purposes (ESP) courses that focus on specific content and hardly cover students' grammatical needs. However, as Dudley-Evans and St. John (1998, pp. 74-80) make quite clear, teaching Languages for Specific Purposes (LSP) should not give *carte blanche* to overlook knowledge gaps in grammar. In an attempt to improve this state of affairs, WISE merges these two referred

premises, searching for a way to take advantage of the illustrative power of images as a support for language grammar teaching.

While metaphor theory can provide some theoretical rationale to explain the cognitive extent to which visuals are mappable onto languages, it suffices here to outline the following notion: if graphic supports help to understand complex concepts (in our case, grammatical), it is because some common conceptual metaphors like ‘understanding is seeing’ can ease the mapping of our commonplace knowledge about visuals onto students’ own knowledge of grammar (cf. [Lakoff, 1987](#), p. 222). Then, recognising the power visuals have, we can map them onto our understanding of language and deploy proposals that, like WISE, can draw on students’ visual knowledge and help them improve their frequently blurred idea of grammar.

If these were the premises that somehow made the conceptualisation of WISE possible, the stimulus that initiated its conception and ultimately defined its goal however, was the frequent verb-related mistakes made by low-level English as a Second Language (ESL) and ESP students alike. Many of them are false beginners with a rudimentary grammar base. As failing to use verbs properly can undermine communication seriously, it seemed worthwhile to pay verbs due attention and take into account any new insights of their performance to relieve or upgrade students’ learning. That was exactly the project’s final target.

2. From WISE analysis to the WISELAV web application

WISE ([Palacios, 2009](#)) is a verbo-graphic analogy developed to describe the English verb by means of a system of fitting shapes. It exemplifies verbs as they combine to produce different verb phrases or groups (henceforth VGs). This construal of verb structure through fitting shapes, in turn, involved a thorough analysis of verb rules at work so that their functional and morphological performance could be conveyed onto the parallel, purposely-created visual

system. As a result, it works rather well illustrating many operational aspects of verbs such as the different degree of inflection and periphrasis VGs have in order to produce grammatical forms and meanings, the subject-verb agreement, modals' different operation and the distinct telescoping arrangement of English verb structure. All these features often lead to the verb mistakes referred to before and so, in principle, WISE could meet a good deal of students' verb grammar needs and increase their linguistic awareness.

Table 1. Principles and contrast between the English verb system and WISE

Principles and contrast	English verb system	Graphic WISE scheme
Typical paradigm of information flow	Each unit (word/shape) has 2 codes (transmitter and receptor). Some code is passed forwards to the next unit.	
Reversion of transfer system	Morphological codes: (Transmitting stems + receptive endings).	Graphic codes: (Receptive backs + transmitting fronts).
	Inverted or non-continuous: Stem+(...)-> (...)+Receptive ending Stem1+ending0 -> Stem2+ending1 ...	Direct-contact or flat transfer: Back0+Front1 -> Back1+Front2 ...
Functional value of units	There are several functional verb categories.	WISE units represent forms of functional status.
	Some auxiliary verbs can vary their functions and thus their categories.	Those verbs have different WISE shapes depending on their function.
	Compound structures have the functional value given by the combination of units. Even if shortened or omitted, they are disambiguated by context.	Whether they are explicit or not, WISE always represents their functional value.
Irregular morphologies	Some forms are metamorphosed into irregular morphologies or have receptive code Ø.	Yet their representation with WISE is always regular.
Values of the first verb (operator, in compound structures)	Subject-verb agreement (rarely displayed in English) and mode/tense disjunction.	Both variables displayed in the active core of first shape.

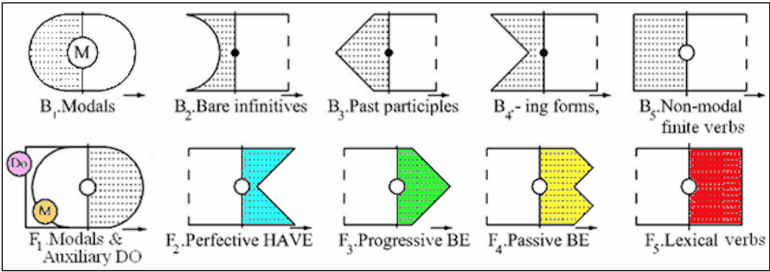
The process to develop a computer program has brought about some improvements to WISE's first interpretation of the English verb. These improvements, together with the on-going software development and some preliminary trials, account for WISELAV's current state of the art. Before referring this, it is highly convenient to recover some basic principles of its graphic analysis, here briefly related to their analysed target. WISE's graphic approach allows a higher level of representational meaning than linguistic instances: rather than precise VG examples alone, WISE also produces the patterns of verb structure to which any discrete example belongs. This can easily be explained: the last link of the VG chain (unless there is an ellipsis or omission) must always be a lexical verb, and that lexical verb, even if it is a single concrete one, is seen as a category with no further distinction.

An important improvement has been the reduction of WISE verb assignments provided by Palacios (2009, p. 106). The initial system of six possible backs and six possible fronts has been simplified to just five fronts and five backs (Figure 1). Whereas the backs are related to the morphological receptors of verb endings (except for the subject-verb agreement, which appears in the shape cores), the fronts are associated with the six functional verb categories (modals and auxiliary 'do' share the same front and hence merge in just one front, F_1). These ten graphic contour codes can be considered the WISE basic constituent parts that make up single-shaped verb units together with their structural extended patterns. To increase distinction, different colours have been given to the six verb categories.

Apart from the contour assignments resulting in five backs and five fronts, WISE makes use of a few other useful distinctions in order to produce its graphic shapes. First, to distinguish between unchanging and variable assignments and thus resemble verbs' mentioned functional variability at times, some contours can be represented with **continuous or broken lines**, depending on whether they represent fixed or variable verb functional categories. Following these criteria, for example, the front of lexical verbs has a continuous line, which shows this category is always depicted this way (Figure 1, F_5). At sentence level, we could take into account transitivity and so make some graphic

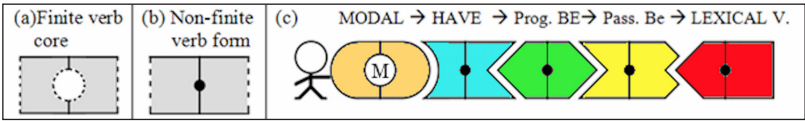
distinction for such a feature. However, to focus on the verb phrase, WISELAV neglects that variable.

Figure 1. WISE’s upgraded assignments of backs and fronts



Another WISE distinction is the one made for **cores**. Finite verbs, apart from their intrinsic grammatical meanings (in Figure 1), carry the specific values of finiteness: subject-verb agreement (although not so much in English) and conveying either tense or modality. These features can only be expressed by the verbs appearing in VG first position within sentences. In order to depict these meanings, WISE distinguishes finite verbs with an active core (Figure 2a) that can symbolically differentiate among all the mutually exclusive values each of these two variables can take. On the other hand, verbs become non-finite when occurring in whatever other circumstances, therefore carrying neither subject agreement nor any tensed or modal load. This condition is shown through a black non-active core (Figure 2b). Actually, in a strict sense, it is the non-finite backs (Figure 1, B₂₋₄) that can be considered the only three possible receptive shapes in an extended VG, the other two backs being finite receptors (Figure 1, B₁ & B₅) and therefore carriers of subject agreement. This fact can prove of interest when teaching the system.

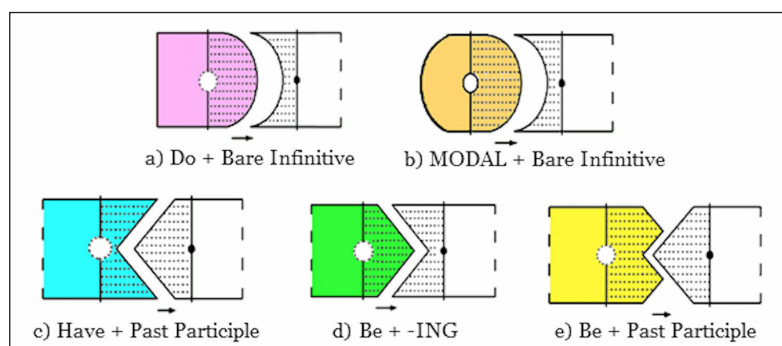
Figure 2. Patterns of finiteness and telescopic arrangement



These distinctive criteria (front/back shape, colour, line type and core) work together to provide an accurate description of verbs. In the case of modals, for instance, as they can only perform as finite modal auxiliaries, that quality always makes them finite-core shapes with both back and front of continuous round contour. Similarly, we can check the shapes of the three non-finite verb simple forms (Figure 1, B₂₋₄) and easily visualise it in other possible extended structures (see the schematic WISE telescopic verb arrangement in Figure 2c). In this way, when a verb is conjugated, it will necessarily follow the sequence of first finite then non-finite cores.

It must also be reminded that the ten graphic assignments were not given capriciously but, up to what was feasible, by considering the time semantic value each adds to the VG and trying to convey some mnemonic strategy. In order to ease the visual proposal and make the most of its cognitive possibilities, everything was carefully looked into, deliberately pursuing some principles of iconicity (such as conciseness, generalisation, autonomy, and structure). Their correct assembly allows us to project at a glance **the five basic verb combinations** (cf. Downing & Locke, 2006; Quirk, Greenbaum, Leech, & Svartvik, 1985) while mirroring their restrictions (Figure 3).

Figure 3. The five basic verb combinations

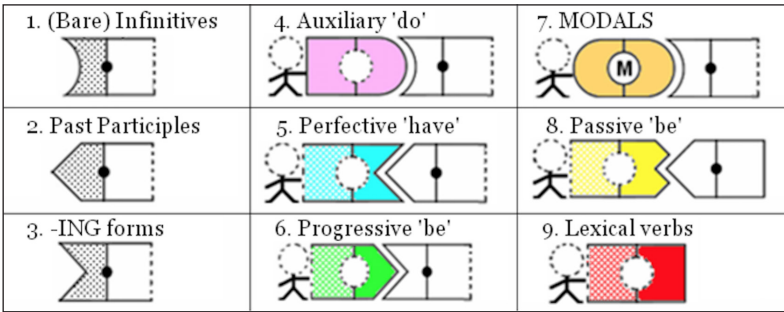


Thus, by following grammar rules and applying the explained distinctions of continuous-broken line and core type, we have what can be regarded as the nine

WISE basic verb shapes (Figure 4). As they need proper understanding and learning to deal easily with the different verb patterns, it is worth recollecting their **mnemonic** support:

- 1) Infinitive: back of forward semicircle, neutral semantic value.
- 2) Past participle: back of backward arrow, value of completed action.
- 3) –ing form: back of forward arrow, value of action in progress.
- 4) Auxiliary ‘do’: Shape that recalls its capital D.
- 5) Auxiliary ‘have’: backward-arrow front linkable to the perfective aspect.
- 6) Progressive ‘be’: forward-arrow front linkable to the progressive aspect.
- 7) Modal: Invariable shape that may remind us of a circle.
- 8) Passive ‘be’: zigzag front that may recall the passive role drift to the subject as verb action addressee.
- 9) Lexical verbs: vertical front that usually closes the verb chain.

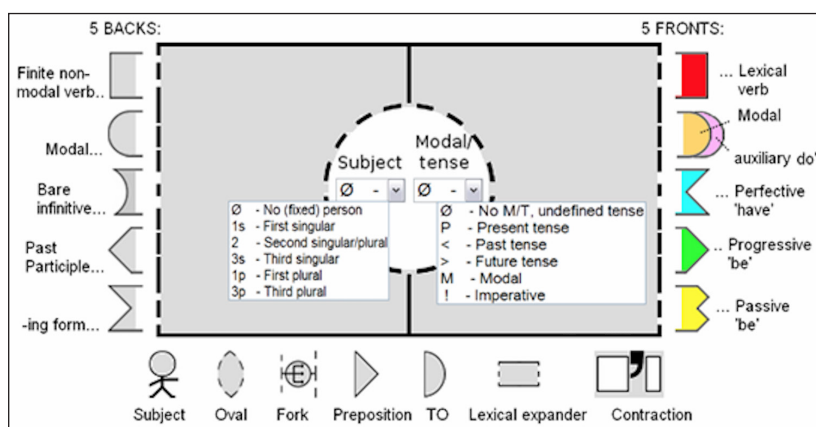
Figure 4. The nine WISE basic verb forms



The continuous-broken line distinction is useful for synthesis and research purposes when studying the different patterns of structure. However, it is not so when describing concrete VGs whose components have concrete functions. Therefore, broken lines are not generated with the WISELAV application, intended to create plain shapes of particular examples with fixed contours.

The first version (<http://www3.ubu.es/wiselav>) already highlights the visual aspects of the system but has just partly developed some of the necessary subsystems: an introduction; the example builder, meant to upload an assortment of examples designed to practise and validate WISE pedagogical interest; a user's application, to allow interaction with the system and perform the designed learning tasks; and a teacher's management application, to allow teachers to control the different possibilities the platform offers. Underlying the example builder and the user's application is the WISELAV Figures Generator (henceforth WFG, Figure 5), a subsystem that holds all the concepts defined in WISE as interactive icons to be used and form the different shapes.

Figure 5. WFG



At the sides, the **backs** and **fronts** appear to generate verb shapes. Clicking on the **subject** displays the subject-dummy and activates the core, conceived to

mark subject agreement and tense-modal value of the first verb by choosing among the different options of the **core's left and right tabs**. The **contraction** icon allows to show both the negative contractions (clicking on contraction + oval + NOT), and the operator contractions (clicking on subject + contraction + front). Finally, between subject and contraction appear the **non-verbal elements** that can intervene and interact with verbs.

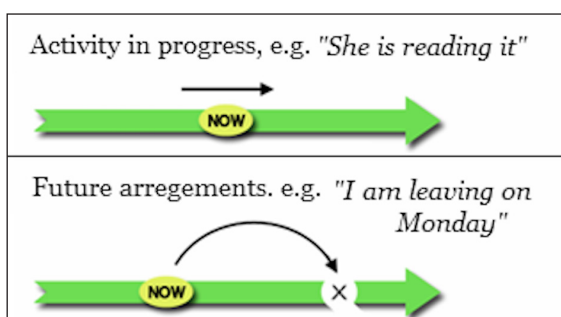
The **oval** displays those elements which do not alter the verb's morphological transfer (inverted subject, negation, intervening adjuncts and, occasionally, the object), as in the role of double dominoes. Rather than ovals, they actually become strips replicating the preceding front. The **fork** reproduces the effect that certain coordinators (AND, OR, BUT, the comma, etc.) have in inter-verbal position. Its two variable sides allow for graphic adjustments in order to integrate the morphological changes these coordinators bring about in the VG.

Prepositions have the shape of a forward arrow triangle, which fits in the back of –ing forms, thus imitating their linguistic behaviour. The **TO particle** is represented by a forward semicircle that fits the back of infinitives. The **lexical expander** is a rectangular band, which is narrower than verb shapes and which can represent both intervening non-verbal elements and other components external to the VG (thus allowing for sentence level analysis). When a lexical verb front is formed, the system is programmed to pop up the interactive **addition** icon. On the left appears the **explicit addition**, meant to represent examples like 'to be able to'; on the right appears the **inherent addition**, which can be employed for cases whose internal morphological transfer is not explicit, cases such as 'to stop + –ing'. If both addition icons remain unclicked, the next shape is not attached, as in 'before coming'.

All in all, being provided with these interactive icons, the WFG can represent both the mainstream English verb conjugation and other off-mainstream verb arrangements, like lexical auxiliaries, catenative verbs and phrasal verbs. What is most revealing is that the WFG can do this without betraying WISE principles, and hence, show English verb grammar at work.

However, in order to offer a complementary teaching resource, WISELAV also includes a smaller analysis of tense functions through a series of diagrams correlated to each particular tense and deliberately simple (based on the communicative power of arrows, brief labels and examples). These slides can emerge along with examples and thus offer a quick functional hint for students. Figure 6 charts the diagrams corresponding to the present progressive.

Figure 6. Uses of present progressive



3. WISELAV's progress and future implementation

The software system has been designed to detect and show mistakes and, by doing so, it is expected to increase users' linguistic awareness and cut down on their mistakes. In any case, WISELAV objectives must not be misunderstood. The project is not meant to produce an alternative, complete grammar, or to replace conventional teaching methodology. Rather, it is meant to provide some auxiliary support and increase the learning of some grammatical issues.

In a second phase (<http://www3.ubu.es/wiselav2>), the program has been redesigned and upgraded to allow for a better management of exercises and results. For instance, an exercise builder can now upload specific tasks associated to selected examples (avoiding random example occurrence), manual sound recording of examples is added, the colour distinction of verb categories has been implemented, and a score-keeping application registers exercise results as

accessible data for subsequent analysis. However, important advances remain to be implemented: the future software should allow us to record sound and manage sentence segments better and, overall, it should be more user-friendly. Once these features are integrated into a smoothly-run application, the different shapes will be close to having ‘their own life’. This will enable an appropriate use online, providing a valuable learning tool. The results obtained in some preliminary trials seem to support this prospect.

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